EXAMINATION OF THE RELATIONSHIPS BETWEEN THE DIMENSIONS OF SELF-PERCEPTION AND NON-PRESCRIBED RITALIN USE IN TEENS

A Thesis

by

MINDY LEE LAMKIN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

December 2010

Major Subject: Health Education

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Approved by:

Co-Chairs of Committee,	E. Lisako J. McKyer
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ABSTRACT

Examination of the Relationships Between the Dimensions of Self-Perception and Non-Prescribed Ritalin Use in Teens. (December 2010)

Mindy Lee Lamkin, B.S., Texas A&M University

Co-Chairs of Advisory Committee: Dr. E. Lisako J. McKyer
Dr. Mathew Lee Smith

Due to an increase in diagnosis and prescription of methylphenidate and other ADD/ADHD medications, concerns have been expressed over the rise in Ritalin diversion from prescription to nonmedical use. The objective of this study was to investigate the relationships between the dimensions of self-perception (i.e., *Impulse Control, Body Image, Mastery of the External World, Worry Control*) self-enhancement, environmental and demographic factors, and non-prescribed Ritalin (methylphenidate) use.

This cross sectional study draws on secondary data from the Adolescent Health Risk Behaviors Survey (AHRBS). The secondary data from AHRBS were analyzed using a sample size of n=1992 and a sub-sample size of n=79. Subjects completed questions pertaining to the dimensions of self-perception, self-enhancement, and demographic factors. The results of this study reveal that females who have worse *Body Image*, and *compare their exams to their previous exams* are on average more likely to use non-prescribed Ritalin. As a result, researchers in this area may want to focus on self-perception and self-enhancement in order to better understand illicit drug use.

Future research should explore the difference between experimentation vs. regular users and how to incorporate this into effective and efficient drug prevention programs.

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Lastly, I would like to give a special "thank you" to my mother and father for their encouragement and support, and to my fiancé Carlos for his patience, understanding, and love. I would not be where I am today without any of you.

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INTRODUCTION

Ritalin (methylphenidate) is a stimulant prescription drug for the treatment of attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD) and narcolepsy (Indiana Prevention Resource Center, 2009). When used as prescribed, Ritalin changes the user's brain activity and increases his/her alertness and energy levels (Indiana Prevention Resource Center, 2009). It also increases the extracellular dopamine in the brain, which resembles cocaine and methamphetamine, two of the most commonly abused stimulant drugs (Volkow & Swanson, 2003). Methylphenidate has been classified as a schedule II controlled substance, due to its high potential for abuse, and potential for severe psychological or physical dependence and overdose (National Institute of Health, 2009; Schepis & Krishnan-Sarin, 2008). As with most addictive drugs, users can develop a tolerance to methylphenidate thereby causing stimulant withdrawal symptoms (Sussman, Pentz, Spruijt-Metz, & Miller, 2006). When Ritalin is abused (also termed misused, illicitly used, or non-medically used), users may experience restlessness, dizziness, tremors, euphoria, headache, and difficulty coordinating musculoskeletal movements (Indiana Prevention Resource Center, 2009).

From 1997 to 2006 there was an average diagnosis of ADHD increase of 3% per year (Pastor & Reuben, 2008). In 2006 4.5 million children aged 5 to 17 had ever been diagnosed with ADHD (Bloom & Cohen, 2007). In 1991 manufactures (2 bulk and four

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This thesis follows the style of the *Journal of Adolescence.*

dosage form manufacturers) of methylphenidate reported domestic sales at 2,000 kilograms per year, but by 1999 the manufacturers (6 bulk and 19 dosage form manufacturers) reported an increase of nearly 500% (Woodworth, 2000). Due to this increase in diagnosis and prescription of methylphenidate and other ADD/ADHD medications, concerns have been expressed over the rise in Ritalin diversion for nonmedical use (Boyd, McCabe, Cranford, & Young, 2006; Kroutil et al., 2006; McCabe, Teter, & Boyd, 2004; Poulin, 2001; Sussman et al., 2006). The literature suggests this diversion is attributed to prescription fraud; adolescents selling, sharing, and trading their prescriptions; and adolescents being coerced into giving away their pills (Poulin, 2001; Robinson, Sclar, Skaer, & Galin, 1999; Woodworth, 2000). In one study, 14.7% of students (n= 710) who had reported medical stimulant use had given away their prescribed stimulants, and 7.3% had sold their prescriptions to others (Poulin, 2001). Among those who reported selling medical stimulants to other youth, 80% also reported giving some away (Poulin, 2001). Additionally, Poulin (2001) found that 3.0% of students had their prescriptions taken from them against their will, and 4.3% had their prescriptions stolen.

Non-Prescribed Ritalin (Methylphenidate) Use Among Adolescents

It has been found that adolescents who are using Ritalin illicitly do not simply take the medication in its pill form (Sussman et al., 2006; Volkow & Swanson, 2003). One study found that of 382 lifetime users, 95.3% reported oral administration, 38.1% snorting, 5.6% smoking, and less than 1% reported other routes (Teter, McCabe,

LaGrange, Cranford, & Boyd, 2006). When oral administration did occur, results were only noticeable if the drug was taken in high doses (Sussman et al., 2006). When methylphenidate was taken in a different form than the pill, such as nasally or intravenously, the effects and abuse potential increased because the drug was being inserted into the system at a faster rate, and at a larger concentration (Teter et al., 2006).

According to the SAMHSA's Drug Abuse Warning Network (DAWN) (2004), an estimated 7,873 methylphenidate or amphetamine-dextroamphetamine (two medications for treatment in ADD/ADHD) associated emergency department visits were reported in 2004. The reasons for the visits were "nonmedical use (48%), followed by adverse reactions associated with medical use (34%), accidental ingestion (10%), and suicide attempts (8%)" (Substance Abuse and Mental Health Services Administration [SAMHSA], 2004, "Highlights," para. 1). The SAMHSA (2004) also found that 68% of the emergency room visits associated with methylphenidate or amphetamine-dextroamphetamine also involved other substances including alcohol, illicit drug, or other pharmaceuticals.

Novak, Kroutil, Williams, and Van Brunt (2007) observed that 68% of their past-year non-medical use participants mixed methylphenidate with at least one other substance, either at the same time or within a couple of hours. They suggested that users were looking for a more powerful effect by using a combination, or they had reached a tolerance and needed to mix in order to reach the same "high" (Novak et al., 2007). Other studies suggest that the reason adolescents use Ritalin and other stimulant drugs illicitly is to "use these drugs to help keep alert and concentrate as they prepare ("cram")

for tests or complete term papers" (Sussman et al., 2006 "Brief history and current status of study drugs," para. 2). One study found that out of 382 lifetime users, 65.2% used prescription stimulants to help concentrate, 59.8% to help study, 47.5% to increase alertness, 31% to 'get high', 9.7% to lose weight, and 5% for other reasons (Teter et al., 2006). This same study also found that the motives for students who had not yet entered college vs. college students were more likely to be 'getting high' (46.6% vs. 22.8%), to lose weight (15.3% vs. 6.5%) and to experiment (42% vs. 24%) (Teter et al., 2006).

Theoretical Approaches Used to Study Ritalin Abuse Among Adolescents

The complexities of human behavior have lead researchers to explore theories and models that incorporate the role of self-perception. Such studies provide a mode of understanding why adolescents act out risky behaviors. Some researchers use the social ecological model to explain the influences on the adolescent drug use behavior. Two researchers took Bronfenbrenner's Ecological Model (1979) and adapted it slightly (Twombly & Holtz, 2008). Of the two forms of environmental influences on adolescents, these researchers suggest that the developmental contexts that are most likely to cause a direct impact are the proximal influences (e.g., personality, intelligence) (Twombly & Holtz, 2008). Twombly and Holtz (2008) also suggest that by examining the micro and macro divisions one may explain the different influences. The social-ecological model is illustrated in Figure 1.

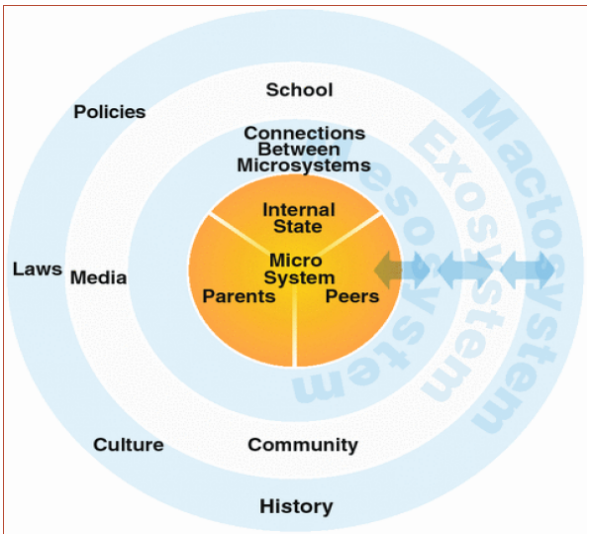

Figure 1. An Adaption of a Socio-Ecological Model by Twombly and Holtz (2008)

Examination of the micro system of the socio-ecological model reveals a construct for the internal state/trait of individuals. These intrinsic factors within respective individuals are of particular interest to and one of the aims of this study – i.e., we will more closely examine aspects of intrinsic individual characteristics related to illicit Ritalin use among adolescents.

Self-Esteem, Dimensions of Self-Perception, and Self-Enhancement Among Adolescents

Factors most identified in the research literature as explanations for illicit drug abuse include, previous use of drugs, recreational use, test preparation (to help concentrate on studying or cram for tests), self-medication, performance enhancement, and college enrollment (Novak, et al. 2007; Poulin, 2001; Sussman et al., 2006; Teter et

al., 2006). Few studies have attempted to equate Ritalin use with self-esteem or derivatives of self-esteem such as self-perception or self-enhancement.

Self-esteem is an important factor in adolescent growth and healthy development (Kavas, 2009). Self-esteem can either be a positive or negative orientation towards oneself. A high self-esteem has been associated with greater environmental mastery, more purpose in life, higher self-acceptance, greater self-worth, positive relationships with others, and personal growth (Paradise & Kernis, 2002; Wild, Flisher, Bhana, & Lonbard, 2004). Findings from one study revealed that low self-esteem was associated with "lower self acceptance and less positive relations with others" (McGee & Williams, 2000, pp. 579) while another found that "the lower the level of self-esteem, the higher the level of behavior [health risk behaviors]" (McGee & Williams, 2000, pp. 579).

Self-perception is a construct of the biopsychosocial model as outlined in Smith McKyer, and Larsen (2010) representing 4 dimensions; *Impulse Control*, *Body Image*, *Mastery of the External World*, and *Worry Control*. Self-Enhancement is a concept that has been derived from two different sources; Festinger's (1954) social comparison theory and Allport's (1937) self-insight concept (Kwan, John, Kenny, Bond, & Robins, 2004). Kwan et al. (2004) also suggests that self-insight or social comparison can lead individuals to try to enhance themselves. Similar to self-esteem, self-enhancement can also be either positive or negative for an individual (Kurt & Paulhus, 2008, Kwan et al., 2004; Paulhus, 1998).

Some studies have suggested that self-esteem as a single variable has little to do with adolescent health risk behaviors; rather, adolescent risk behaviors are more

complex and need to incorporate multiple intrapersonal domains (Jessor, 1991; McGee & Williams, 2000). There have been studies that have implied that low self-esteem could come after the risky behaviors as an effect, not a cause, and vice versa (McGee & Williams, 2000; Wild yet al., 2004). Despite the theorized causality between self-esteem the domains of self-perception or self-enhancement and adolescent risk behavior, there is a general accord that these variables are interrelated.

While it is important to clarify the distinctions and relationships among the three, for the purpose of this study, we chose to focus on self-perception and self-enhancement. The domains of self-perception allow us to more specifically examine relationships among self-perception domains and adolescent risk behavior. By focusing in on these derivatives we may be able to better understand adolescent risk behaviors pertaining to non-prescribed Ritalin use.

Theories and Models Incorporating Self-Perception and Self-Enhancement

It has been mentioned in the literature that Social Cognitive theory (SCT) has been an important theory to utilize while examining self-perceptions. This is due to the theory's involvement with personal, socio-environmental, and behavioral factors, and their relationships (Neumark-Sztainer, Story, French, & Resnick, 1997). Neumark-Sztainer et al. (1997) also mentions Jessor's model for explaining the risk behaviors in adolescents and how Jessor's model draws on SCT. One of SCT's concepts is the *self-evaluative outcome expectation*, where "behavior can be governed partly by people's anticipation of how they will feel about themselves if they do or do not perform a certain

behavior" (Glanz, Rimer, & Viswanath, 2008, pp.172). Glanz et al. (2008) suggests that for some individuals, their self-evaluation outcomes are stronger and will affect behavior more than social or material influences.

Additionally, Social Comparison Theory has been mentioned as a resource for explaining how people evaluate their opinions (Kwan et al., 2004; Morry, Reich, & Kito, 2010). It has been mentioned when discussing how adolescents, specifically teenagers, learn about the world around them and how they "fit" into it (Krayer, Ingledew, & Iphofen, 2008). The Social Comparison Theory encompasses three main constructs, self-evaluation, self-enhancement, and self-improvement. All pertain to how one would obtain information about his/her surroundings, his/her own standing as compared to others, and how to improve his/her standing (Krayer et al., 2008).

Research Purpose

The research literature provides some explanation about how over-treatment of ADD and ADHD relates to the illicit abuse of Ritalin; however, there is a paucity of research that addresses the reasons adolescents seek out Ritalin for non-prescriptive use. Studies have examined the risk factors associated with adolescent prescription abuse, and nearly all have focused on misuse associated with past use of other drugs and other addictive substances (McCabe, Boyd, & Young, 2007; Novak et al., 2007; Schepis & Krishnan-Sarin, 2008). Yet, more specific information on the characteristics of adolescent risk behaviors is lacking. The purpose of this study is to address this void in the body of knowledge by examining specific dimensions of intrinsic personal

characteristics, and their relationships to adolescent health risk behaviors. Specifically, we seek to determine the relationship of dimensions of self-perception (i.e., *Impulse Control*, *Body Image*, *Mastery of the External World*, and *Worry Control*) and self-enhancement with the nonmedical illicit use of methylphenidate.

METHODS

Participants and Procedure

This cross sectional study draws on secondary data from the Adolescent Health Risk Behaviors Survey (AHRBS) developed by Omori and McKyer in 2005 (McKyer, personal communication, August, 2010). The AHRBS instrument investigates adolescent health risk behaviors and the social and environmental factors that impact them. The data were collected during the spring of 2006 as the sixteenth Annual Survey of Alcohol, Tobacco, and Other Drug Use by Indiana Children and Adolescents (Gassman et al, 2006). The survey was administered in Indiana to one school district (public and private) with a total of 1992 adolescents between sixth and twelfth grade (Smith et al., 2010). The AHRBS was distributed to randomly selected schools, and then randomly selected classrooms within those schools (Smith et al, 2010). Appropriate institutional review boards approved the study and all participants provided a consent form.

Measures

Omori (2005) originally designed and administered an instrument for Japanese students in Japan; the AHRBS instrument is a modified version of this. The AHRBS instrument provides data on demographics and variables of self-esteem, self-enhancement, risk perception, normative perceptions, incidence and prevalence of alcohol, tobacco, and other drugs (ATOD), as well as risk and protective factors. The

survey instrument contains questions about demographics and 190 multiple choice, close-ended, and Likert-type questions (Smith et al., 2010). These items were structured in the form of 16 separate scales that measured ATOD use and their psychological and socioecological factors (Smith et al. 2010). A copy of the AHRBS instrument is available in Appendix A.

This study only included those questions pertaining to sex, school type, school grade, and the dimensions of self-perception, self-enhancement, and lifetime non-prescription Ritalin use. The scales that make up the dimensions of self-perception were the *Impulse Control* scale, *Body Image* scale, *Mastery of the External World* scale, and the *Worry Control* scale (Smith et al, 2010). These variables, questions, and scales are included in Table 1.

Table 1

Description of Demographics and Dimensions of Self-Perception Variables.

Variable	Indicator	Scale
Gender	Male or Female	
School Level	Middle or High	
School Type	Public or Private	
Self-Enhancement	Q21. "When you receive exam scores back, how likely is it that you would compare your current score with how well you did on *previous* exams?"	0 = Least Likely 1 = Less Likely 2 = Don't Know 3 = More Likely 4 = Most Likely
	Q22. "When you receive exam scores back, how likely is it that you would compare your current score with how well others did on the same exam?"	0 = Least Likely 1 = Less Likely 2 = Don't Know

Table 1: Continued.

Variable	Indicator	Scale
		3 = More Likely 4 = Most Likely
Self-Perception		
Impulse Control		
	Q3. "I can take criticism without resentment"	0 = Describes me very well to 5 = Does not describe me at all
	Q4. "Even under pressure I manage to remain calm"	0 = Describes me very well to 5 = Does not describe me at all
	Q5. "I keep an even temper most of the time"	0 = Describes me very well to 5 = Does not describe me at all
	Q7. "Usually I control myself"	0 = Describes me very well to 5 = Does not describe me at all
Body Image		
	Q9. "I am proud of my body"	0 = Describes me very well to 5 = Does not describe me at all
	Q11. "Very often I think that I am not at all the person I would like to be"	0 = Describes me very well to 5 = Does not describe me at all
	Q12. "I frequently feel ugly and unattractive"	0 = Describes me very well to 5 = Does not describe me at all

Table 1: Continued.

Variable	Indicator	Scale
	Q13. "When others look at me they must think that I am poorly developed"	0 = Describes me very well to 5 = Does not describe me at all
	Q17. "I find life an endless series of problems without a solution in sight"	0 = Describes me very well to 5 = Does not describe me at all
	Q19. "I feel that I have no talent whatsoever"	0 = Describes me very well to 5 = Does not describe me at all
Mastery of the External World		
	Q15. "If I put my mind to it, I can learn almost anything"	0 = Describes me very well to 5 = Does not describe me at all
	Q16. "When I decide to do something, I do it"	0 = Describes me very well to 5 = Does not describe me at all
	Q18. "I feel that I am able to make decisions"	0 = Describes me very well to 5 = Does not describe me at all
Worry Control		
	Q2. "At times I have crying and/or laughing fits that I seem unable to control"	0 = Describes me very well to 5 = Does not describe me at all
	Q6. "I fear something constantly"	0 = Describes me very well to 5 = Does not describe me at all

Table 1: Continued.

Variable	Indicator	Scale
	Q8. "In the past year I have been very worried about my health"	0 = Describes me very well to 5 = Does not describe me at all
Lifetime Ritalin Use		
	Q132. "Have you Ever used Ritalin?"	0 = Never 1 = 1-5 Times 2 = 6-19 Times 3 = 20-40 Times 4 = More than 40 Times

Objectives and Hypothesis

The first study objective is to investigate a relationship between non-prescribed Ritalin use and dimensions of self-perception (i.e., *Impulse Control*, *Body Image*, *Mastery of the External World*, and *Worry Control*) among adolescents. We hypothesized that there would be a positive relationship between non-prescribed Ritalin use and the dimensions of self-perception among adolescents. More specifically,

Hypothesis 1

H_a1: There is significant difference in the dimensions self-perception based on the participants Ritalin use status.

$H_0 1$: There is no significant difference in the dimensions self-perception based on the participants Ritalin use status.

The second study objective was to examine for differences among self-enhancement and non-prescribed Ritalin use. More specifically,

Hypothesis 2

H_a2: There is no significant difference in self-enhancement based on the participants Ritalin use status.

$H_0 2$: There is no significant difference in self-enhancement based on the participants Ritalin use status.

The third study objective was to examine the relationships among environmental variables, self-perception, self-enhancement and non-prescribed Ritalin use.

Hypothesis 3

H_a3: There are significant relationships among environmental and demographic factors (e.g., school type, grade, sex), dimensions of self-perception, self-enhancement, and non-prescribed Ritalin use among adolescents.

$H_0 3$: There are no significant relationships among environmental and demographic factors (e.g., school type, grade, sex), dimensions of self-perception, self-enhancement, and non-prescribed Ritalin use among adolescents.

Analytic Methods

The secondary data from AHRBS was analyzed using a sample size of n=1992 and a sub-sample size of n=79. There were 10 variables and 22 questions related to demographics, self-perception, self-enhancement, and non-prescription Ritalin use included in the analysis. These analyses were performed using Statistics Package for Social Sciences (SPSS Version 17.0). The first analytic methods performed were

descriptive analyses and frequencies to determine the demographic characteristics of the participants and the response patterns. The descriptive analysis were run for both the sample of n=1992 and the sub-sample n=79.

For the first null hypothesis, independent samples t-tests and Cohen's D were performed to determine if there was a positive relationship between non-prescribed Ritalin users and the dimensions self-perception and to find the effect size. An Independent samples t-test and Cohen's D was also run for the second null hypothesis. This test was performed to determine if there was a positive relationship between self-enhancement and non-prescribed Ritalin use and to find the effect size. Eight linear regression analyses were performed for the third null hypothesis. They were completed to evaluate if there was a positive relationship between each dimension of self-perception and the different demographic variables, and to determine differences between the whole sample and the sub-sample of non-prescribed Ritalin users only.

RESULTS

Sample Description

A total of 1992 participants were included in this study. The gender distribution was 48.7% male and 51.3% female. Table 2 provides a summary of the descriptive statistics of the sample.

Table 2
Descriptive Characteristics of Participants.

Variable		*n*	Valid Percent
Sex			
	Male	847	48.7
	Female	894	51.3
School Level			
	Middle School	454	26.2
	High School	1278	73.8
School Type			
	Private School	844	42.4
	Public School	1148	57.6
Grade			
	6th	3	.2
	7th	213	12.3
	8th	235	13.6
	9th	291	16.8
	10th	255	14.7
	11th	307	17.8
	12th	425	24.6

For the third hypothesis a sub-sample of 79 participants were selected because they self-identified as non-prescribed Ritalin users. The gender distribution was 61.4%

male and 38.6% female. Table 3 provides a summary of the descriptive statistics of the sub-sample of non-prescribed Ritalin users.

Table 3
Descriptive Characteristics of Sub-Sample Participants.

Variable		*N*	Valid Percent
Sex			
	Male	43	61.4
	Female	27	38.6
School Level			
	Middle School	10	14.5
	High School	59	85.5
School Type			
	Private School	23	29.1
	Public School	56	70.9
Grade			
	6th	2	2.9
	7th	2	2.9
	8th	6	8.7
	9th	3	4.3
	10th	13	18.8
	11th	18	26.1
	12th	25	36.2

Results of $H_0$1 Analysis

The first null hypothesis – "There is no significant difference in the dimensions self-perception based on the participants Ritalin use status"- was tested using an independent samples t-test. There was a significant difference in the scores for non-prescribed Ritalin users and non-users for each of the dimensions of self-perception, thus the null hypothesis was rejected. Non-users were found to have worse *Impulse Control*

(M=7.7, SD=3.6) than non-users (M=6.85, SD=3.4), as well as on *Body Image* (users M=10.8, SD=6.4 vs. non-users M=8.32, SD=5.9), *Mastery of the External World* (users M=4.26, SD=2.7 vs. non-users M=3.58, SD=2.7), and *Worry Control* (users M=5.46, SD=3.5 vs. non-users M=4.48, SD=3.3). The alpha level was set at .05.

Table 4
Independent Samples t-test Self-Perception.

Dimensions of Self-Perception	Users	Non-Users	*t*-value
Impulse control scale	n = 69 $\overline{X}$ = 7.71 *(3.6)*	n = 1641 $\overline{X}$= 6.85 *(3.4)*	-2.029*
Body Image Scale	n = 71 $\overline{X}$ = 10.85 *(6.4)*	n = 1626 $\overline{X}$ = 8.32 *(5.8)*	-3.54*
Mastery of the External World Scale	n = 72 $\overline{X}$ = 4.26 *(2.7)*	n = 1684 $\overline{X}$ = 3.59 *(2.7)*	-2.11*
Worry Control Scale	n = 72 $\overline{X}$ = 3.28 *(3.5)*	n = 1688 $\overline{X}$ = 4.48 *(3.3)*	-2.48*

*p <.05

For $H_0$1 each dimension was tested separately. Four separate independent samples t-tests with the participants were conducted: once with the *Impulse Control* scale, once with the *Body Image* scale, once with the *Mastery of the External World* scale, and once with the *Worry Control* scale (see Table 4).

Given the large sample size, statistical significance was not be useful in interpreting the effects of these four constructs on Ritalin Use. Therefore, effect size was also examined. As Table 5 details, effect sizes ranged from .25 to .43.

Table 5
Effect Size Self-Perception.

Dimensions of Self-Perception	Effect Size
Impulse control scale	-0.2495
Body Image Scale	-0.4297
Mastery of the External World Scale	-0.2539
Worry Control Scale	-0.2985

Results of $H_0$2 Analysis

The second null hypothesis – "There is no significant difference in self-enhancement based on the participants Ritalin use status."- was tested using an independent samples t-test. Non-prescribed Ritalin users reported comparing their exam scores with their own previous exam scores significantly less than non-users (M=2.2, SD=1.1 vs. M=1.6, SD=1.2). The alpha level was set at .05.

For $H_0$2 each self-enhancement question was tested separately. Two separate independent samples t-tests with the participants were conducted: once with the "*Compare exams to my previous exams*" question and once with "*Compare exams to exams of others*" question (see Table 6).

Table 6
Independent Samples t-test Self-Enhancement.

Self-Enhancement	Users	Non-Users	*t*-value
Compare exams to my previous exams	n = 77 $\overline{X}$ =2.17 *(1.1)*	n = 1710 $\overline{X}$ =1.60 *(1.2)*	-4.066*
Compare exams to exams of others	n = 77 $\overline{X}$ =1.19 *(1.1)*	n = 1709 $\overline{X}$ =1.16 *(1.1)*	-.231*

*$p < .05$

Given the large sample size of the data, statistical significance was not useful in interpreting the effects of the two self-enhancement questions on Ritalin Use. Therefore, effect size was also examined. As Table 7 details, effect sizes ranged from .02 to .47.

Table 7
Effect Size Self-Enhancement.

Self-Enhancement	Effect Size
Compare Exams to my Previous Exams	-0.4740
Compare Exams to Exams of Others	-0.0269

Results of $H_0$3 Analysis

The third null hypothesis - "There are no significant relationships among environmental (school type) and demographic factors (e.g., grade, sex) dimensions of self-perception (*Body Image*, *Mastery of the External World*, *Worry Control*, and *Impulse Control*), self-enhancement, and Ritalin use among adolescents." was tested

using linear regression analysis. Four tests were run for the total sample of n=1992 participants, with the four dimensions of self-perception as the dependent variables. Four tests were also run for the sub-sample of n=79 participants, with the four dimensions of self-perception as the dependent variables. The results for all eight linear regression analyses are included in Tables 8-15.

As depicted in Table 8, there was a negative relationship between *Impulse Control* and Grade. This suggests that on average the lower the grade level of the adolescent the worse *Impulse Control* he/she has. It was also found (see Table 8) that there was a positive relationship between 1) *Impulse Control* and *Body Image* and 2) *Impulse Control* and *Mastery of the External World* for the full n=1992 sample population. This suggests that on average if an adolescent has high *Impulse Control* then he/she also have a high *Body Image* and high *Mastery of the External World*.

The sub-sample only had a negative relationship between *Impulse Control* and grade, and a positive relationship between *Impulse Control* and *Body Image* as seen in Table 9. This suggests that on average adolescents who use non-prescribed Ritalin are similar in their relationships as the non-users in the general sample. The relationship between *Impulse Control* and *Mastery of the External World* did not have a significant p-value, but that may be because of the small sample size.

Another item we considered was the size differences in the adjusted R squared values. In the total model (Table 8), the predictor variables accounted for 19.4% of the variance in the dependent variable, compared to 13.6% in the sub-sample model (Table 9). This suggests that the variables are stronger in the total model versus the sub-sample.

Table 8
Regression Analysis for Impulse Control.

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Ever Used Ritalin w/o prescription	.040	.105	.387	1.623	-.131	1.387
Sex	.014	.599	.171	.526	-.245	.425
Grade	-.082	.001	.049	-3.330	-.257	-.066
School Type	-.038	.119	.161	-1.558	-.565	.065
Compare exams to my previous exams	.014	.588	.070	.572	-.097	.176
Compare exams to exams of others	-.032	.199	.073	-1.286	-.238	.050
Body Image Scale	.164	.000	.016	5.694	.061	.125
Mastery of the External World Scale	.333	.000	.033	12.810	.362	.493
Worry Control Scale	.026	.366	.029	.905	-.031	.084
Adjusted R Square: .194						

Table 9
Regression Analysis for Impulse Control; Sub-Sample Non-Prescribed Ritalin Users (n=79).

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Sex	.008	.955	.997	.057	-1.942	2.056
Grade	-.305	.025	.341	-2.311	-1.473	-.105
School Type	-.117	.338	.900	-.966	-2.673	.934
Compare exams to my previous exams	.242	.088	.484	1.738	-.129	1.810
Compare exams to exams of others	-.142	.283	.393	-1.084	-1.214	.362
Body Image Scale	.295	.036	.087	2.144	.012	.361
Mastery of the External World Scale	-.087	.518	.204	-.651	-.541	.276
Worry Control Scale	-.126	.442	.176	-.775	-.490	.217
Adjusted R Square: .136						

Table 10 illustrates, a negative relationship between *Body Image* and comparing exams to others, and positive relationships between 1) *Body Image* and *Impulse Control* 2) *Body Image* and *Mastery of the External World* and 3) *Body Image* and *Worry Control* for the sample population (n=1992). This suggests that on average adolescents

who *compare their exams to others*, also have lower *Body Image*. Also on average those who have a low *Body Image* also have low *Impulse Control*, *Mastery of the External World*, and *Worry Control*.

The sub-sample, as shown in Table 11, only shows a positive relationship for 1) *Body Image* and *Impulse Control* and 2) *Body Image* and *Worry Control*. The relationships between *Body Image* and comparing exams to others and *Body Image* and *Mastery of the External World* were not found to be significant in non-prescribed Ritalin users. This may also have been due to the small sample size.

Table 10
Regression Analysis for Body Image.

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Ever Used Ritalin w/o prescription	0.037	0.102	0.629	1.634	-0.206	2.263
Sex	-0.024	0.306	0.278	-1.025	-0.830	0.260
Grade	-0.005	0.811	0.079	-0.240	-0.175	0.137
School Type	0.009	0.698	0.261	0.388	-0.411	0.614
Compare exams to my previous exams	0.044	0.061	0.113	1.878	-0.009	0.434
Compare exams to exams of others	-0.051	0.027	0.119	-2.208	-0.497	-0.029
Impulse Control Scale	0.139	0.000	0.043	5.694	0.161	0.330
Mastery of the External World Scale	0.220	0.000	0.056	8.901	0.388	0.607
Worry Control Scale	0.411	0.000	0.043	17.062	0.656	0.827
Adjusted R Square: .315						

Table 11
Regression Analysis for Body Image; Sub-Sample Non-Prescribed Ritalin Users (n=79).

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Sex	-0.011	0.935	1.485	-0.081	-3.097	2.855
Grade	0.026	0.843	0.532	0.198	-0.961	1.172
School Type	0.017	0.885	1.351	0.145	-2.512	2.904
Compare exams to my previous exams	-0.169	0.209	0.729	-1.271	-2.388	0.534
Compare exams to exams of others	0.009	0.945	0.592	0.069	-1.145	1.227
Impulse Control Scale	0.262	0.036	0.193	2.144	0.027	0.800
Mastery of the External World Scale	0.241	0.054	0.294	1.970	-0.010	1.170
Worry Control Scale	0.432	0.004	0.244	3.025	0.250	1.230
Adjusted R Square: .232						

Table 12 reveals, positive relationships between 1) *Mastery of the External World* and sex, 2) *Mastery of the External World* and grade, 3) *Mastery of the External World* and comparing exams to yourself, 4) *Mastery of the External World* and *Impulse Control*, and 5) *Mastery of the External World* and *Body Image* for the sample population (n=1992). This suggests that on average adolescents who have a strong *Mastery of the External World* also are more likely to be female, higher grade level, *compare their exams to their previous exams*, and have better *Impulse Control* and *Body Image*.

The sub-sample (n=79), as seen in Table 13, only revealed one significant positive relationship and it was between *Mastery of the External World* and comparing exams to self. This suggests that on average those who use non-prescribed Ritalin *compare their exams to their previous exams* more if they have better *Mastery of the External World*. If we compare at the adjusted R square from Table 12 and Table 13, we

see that in the total model, the predictor variables accounted for 23.4% of the variance in the dependent variable, compared to 13.1% in the sub-sample model.

Table 12
Regression Analysis for Mastery of the External World.

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Ever Used Ritalin w/o prescription	-0.011	0.631	0.294	-0.481	-0.719	0.436
Sex	0.053	0.035	0.130	2.108	0.019	0.528
Grade	0.058	0.015	0.037	2.428	0.017	0.162
School Type	0.001	0.955	0.122	0.057	-0.233	0.246
Compare exams to my previous exams	0.110	0.000	0.052	4.480	0.132	0.338
Compare exams to exams of others	0.027	0.266	0.056	1.112	-0.047	0.171
Impulse Control Scale	0.317	0.000	0.019	12.810	0.209	0.285
Body Image Scale	0.246	0.000	0.012	8.901	0.085	0.132
Worry Control Scale	0.011	0.683	0.022	0.408	-0.035	0.053
Adjusted R Square: .234						

Table 13
Regression Analysis for Mastery of the External World; Sub-Sample Non-Prescribed Ritalin Users (n=79).

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Sex	-0.005	0.972	0.657	-0.035	-1.340	1.294
Grade	0.037	0.792	0.236	0.266	-0.409	0.535
School Type	0.049	0.692	0.597	0.398	-0.959	1.435
Compare exams to my previous exams	0.330	0.019	0.311	2.417	0.129	1.376
Compare exams to exams of others	0.007	0.959	0.262	0.051	-0.512	0.538
Impulse Control Scale	-0.088	0.518	0.089	-0.651	-0.235	0.120
Body Image Scale	0.273	0.054	0.058	1.970	-0.002	0.229
Worry Control Scale	0.115	0.485	0.116	0.703	-0.151	0.315
Adjusted R Square: .131						

Table 14 depicts positive relationships between 1) *Worry Control* and sex, and 2) *Worry Control* and *Body Image*, for the sample (n=1992). This suggests that on average adolescents with worse *Worry Control* are female and also have a worse *Body Image*. In the last table (Table 15) the sub-sample (n=79) shows positive relationships between 1) *Worry Control* and sex, 2) *Worry Control* and comparing exams to self, and 3) *Worry Control* and *Body Image*. This suggests that non-prescribed Ritalin users with worse *Worry Control* are on average female, have a worse *Body Image*, and *compare their exams to their previous exams*. As shown in Table 14 the predictor variables accounted for 29.7% of the variance in the dependent variable, compared to 41.4% in the sub-sample. In all of the linear regression analysis before this the adjusted R squared was stronger in the full sample versus the sub-sample. *Worry Control* for the sub-sample is stronger than the total sample.

Table 14
Regression Analysis for Worry Control.

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Ever Used Ritalin w/o prescription	0.024	0.294	0.353	1.050	-0.322	1.064
Sex	0.272	0.000	0.149	11.824	1.466	2.050
Grade	0.009	0.703	0.045	0.382	-0.070	0.104
School Type	-0.016	0.483	0.147	-0.702	-0.391	0.185
Compare exams to my previous exams	-0.042	0.076	0.063	-1.773	-0.237	0.012
Compare exams to exams of others	-0.024	0.306	0.067	-1.025	-0.200	0.063
Impulse Control Scale	0.023	0.366	0.024	0.905	-0.026	0.070
Body Image Scale	0.422	0.000	0.014	17.062	0.207	0.260
Mastery of the External World Scale	0.010	0.683	0.032	0.408	-0.050	0.076
Adjusted R Square: .297						

Table 15
Regression Analysis for Worry Control; Sub-Sample Non-Prescribed Ritalin Users (n=79).

	β	*P*-value	S.E.	*t*	95%CI	
					Lower Bound	Upper Bound
Sex	0.425	0.000	0.658	4.252	1.479	4.116
Grade	0.018	0.873	0.272	0.161	-0.501	0.589
School Type	0.022	0.825	0.690	0.223	-1.229	1.536
Compare exams to my previous exams	0.265	0.022	0.360	2.356	0.127	1.570
Compare exams to exams of others	-0.102	0.347	0.300	-0.950	-0.885	0.316
Impulse Control Scale	-0.086	0.442	0.102	-0.775	-0.283	0.125
Body Image Scale	0.330	0.004	0.064	3.025	0.065	0.321
Mastery of the External World Scale	0.078	0.485	0.155	0.703	-0.202	0.419
Adjusted R Square: .414						

DISCUSSION

The purpose of this study was to determine if the dimensions of self-perception or self-enhancement affect the nonmedical illicit use of methylphenidate (Ritalin) and to determine if demographics played a role. Consistent with the study's hypotheses, the findings from this study indicate that there are positive relationships between the dimensions of self-perception, self-enhancement, and non-prescribed Ritalin use. Additionally grade level seems to also affect non-prescribed Ritalin users.

The first study objective aimed to investigate a relationship between non-prescribed Ritalin use and dimensions of self-perception among adolescents. There was a significant difference in the scores for non-prescribed Ritalin users and non-users for each of the dimensions of self-perception, thus the null hypothesis was rejected. These data suggest that the non-users on average have worse *Impulse Control*, *Body Image*, *Mastery of the External World*, and *Worry Control* compared to non-prescribed Ritalin users. When looking at the effect size, that there was on average a greater difference in *Body Image* between non-prescribed Ritalin users and non-users.

These results were not consistent with other studies found in the literature. Wu et al. (2008) found that depressive factors did have an impact on adolescent substance abuse. Our finding may be different due to the small sub-sample size. Another reason could be that the users had higher control in each of the four dimensions simply because they were using non-prescribed Ritalin use.

The second study objective was to determine if there was a positive relationship between non-prescribed Ritalin use and self-enhancement among adolescents. We hypothesized that there would be a significant relationship. There is enough evidence to reject the null hypothesis for the self-enhancement question that *compares exams to my previous exams*, but not enough for the second question (*compare exams to exams of others*). On average the non-users *compare their exams to their previous exams* more than the non-prescribed Ritalin users do. In fact according to the effect size, the differences are almost one-half of a standard deviation. This finding is consistent with the literature pertaining to adolescent's motivation to improve academic performance (Schepis & Krishnan-Sarin, 2008; Teter et al. 2006).

Lastly, the third study objective was to examine the relationships among environmental variables and non-prescribed Ritalin use. We hypothesized that there would be significant relationships among environmental and demographic factors, dimensions of self-perception, self-enhancement, and non-prescribed Ritalin use among adolescents.

The data suggests (Tables 8-11) that on average non-prescribed Ritalin users who had worse *Impulse Control* were in the lower grade levels. Also on average *Impulse Control* as it relates to grade level was stronger when dealing with non-prescribed Ritalin users versus the general sample. *Impulse Control* on average also affected non-prescribed Ritalin user's *Mastery of the External World* inversely; as one becomes weaker the other becomes stronger. The data also suggests that on average non-

prescribed Ritalin users who have a low *Body Image* also have low *Impulse Control* and low *Worry Control*.

The results (Tables 12 and 13) also implied that on average those who use non-prescribed Ritalin *compare exams to their previous exams* more if they had better *Mastery of the External World*, more than the general sample. This was consistent with the literature. For example Boyd et al. (2006) found that among the reasons adolescents used non-prescribed prescription drugs was to help with concentration and decrease anxiety.

Lastly, the data suggests (Tables 14 and 15) that non-prescribed Ritalin users with worse *Worry Control* were on average female, had a worse *Body Image*, and *compare their exams to their previous exams* as compared to the general sample. This finding was consistent with other studies that have found females more likely to use illicit prescription drugs (McCabe et al. 2007; Twombly & Holtz, 2008; Simoni-Wastila, & Strickler, 2004).

Limitations and Recommendations

There are several limitations of this study. One limitation occurs from the AHRBS instrument itself, which explores alcohol, tobacco, and other drug uses among adolescents; restraining the focus of non-prescribed Ritalin use and self-esteem. Smith et al. (2010) lists further limitations for the AHRBS instrument. Also, this study did not differentiate between those who merely experiment and those who regularly use because the study only looked at those who reported lifetime illicit Ritalin use. This study is

cross-sectional and focuses on one school district in Indiana, thus causing a threat to internal validity. The statistical tests that were utilized can also present with limitations. The questions from the AHRBS are measured using an ordinal scale. It has been suggested that ordinal data are not suitable for t-tests and linear regression, though social scientists still use them (Jakobsson, 2004).

Another limitation is that this study relied on self-reports from a group-administered survey of illicit Ritalin use, which could have resulted in inaccurate reporting. Fendrich, Mackesy-Amiti, and Johnson (2008) found that individuals who were less well educated were more likely to under report illicit drug use. One issue with group administered surveys is that participants who may feel pressured into taking the survey may not answer the questionnaire with honesty (Schutt, 2006). Nevertheless, the accuracy rates for this instrument along with the Indiana ATOD questionnaire for youth – both administered simultaneously indicate high levels of validity and reliability.

Adolescents who have dropped out of school or are homeschooled were not included in the study. The exclusion of data from this population of youth may have resulted in an under-reporting of use. For this study, however, the researchers believed that given the state of Indiana's school attendance policy and enforcement, non-attendance may not have been an issue as would possible be in other state (Indiana Research Prevention Center, 2009). We would also recommend adding a question that explores experimentation versus regular users. In future testing we would attempt to devise a questionnaire that had multiple units of measure – i.e. nominal, ordinal, or interval.

Implications and Future Directions

Despite the limitations described in the previous paragraphs, this study builds upon the existing knowledge regarding non-prescribed drug use and has numerous implications for future research and interventions in the health education field. One such intervention may stem from findings that suggest a positive relationship between adolescents comparing exams to previous exams and non-prescribed Ritalin use. Since the goal is to prevent non-prescribed Ritalin use in adolescents then we recommend that health educators should focus on intervention programs that target academic performance. Educators should also advise adolescents of the potentially serious adverse effects of non-prescribed Ritalin use and include strategies that address adolescent's mental health pertaining to self-perception and self-esteem.

CONCLUSION

The results of this study reveal that females who have worse *Body Image*, and *compare their exams to their previous exams* are on average more likely to use non-prescribed Ritalin. As a result, researchers in this area may want to focus on self-perception and self-enhancement in order to better understand illicit drug use. Youth prevention programs will benefit from these findings as well, given the specificity of information provided by this study. It enables better tailoring of ATOD prevention programs specific to Ritalin, self-perception, and self-enhancement.

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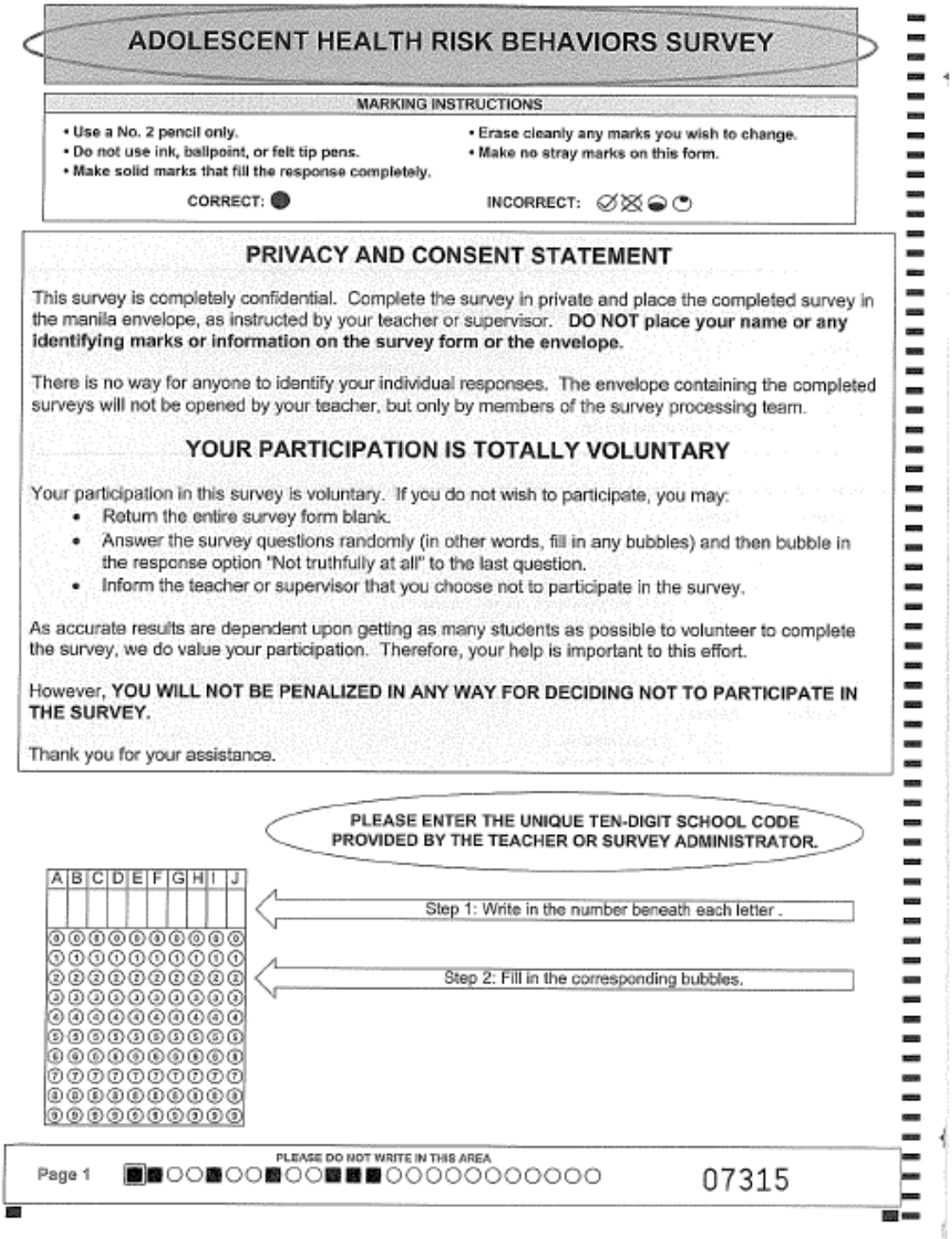
APPENDIX A

AHRBS INSTRUMENT



ADOLESCENT HEALTH RISK BEHAVIORS SURVEY

MARKING INSTRUCTIONS

- Use a No. 2 pencil only.
- Do not use ink, ballpoint, or felt tip pens.
- Make solid marks that fill the response completely.
- Erase cleanly any marks you wish to change.
- Make no stray marks on this form.

CORRECT: ● INCORRECT: ⊘ ⊠ ◒ ◔

PRIVACY AND CONSENT STATEMENT

This survey is completely confidential. Complete the survey in private and place the completed survey in the manila envelope, as instructed by your teacher or supervisor. **DO NOT place your name or any identifying marks or information on the survey form or the envelope.**

There is no way for anyone to identify your individual responses. The envelope containing the completed surveys will not be opened by your teacher, but only by members of the survey processing team.

YOUR PARTICIPATION IS TOTALLY VOLUNTARY

Your participation in this survey is voluntary. If you do not wish to participate, you may:

- Return the entire survey form blank.
- Answer the survey questions randomly (in other words, fill in any bubbles) and then bubble in the response option "Not truthfully at all" to the last question.
- Inform the teacher or supervisor that you choose not to participate in the survey.

As accurate results are dependent upon getting as many students as possible to volunteer to complete the survey, we do value your participation. Therefore, your help is important to this effort.

However, **YOU WILL NOT BE PENALIZED IN ANY WAY FOR DECIDING NOT TO PARTICIPATE IN THE SURVEY.**

Thank you for your assistance.

PLEASE ENTER THE UNIQUE TEN-DIGIT SCHOOL CODE PROVIDED BY THE TEACHER OR SURVEY ADMINISTRATOR.

A B C D E F G H I J

Step 1: Write in the number beneath each letter .

Step 2: Fill in the corresponding bubbles.

PLEASE DO NOT WRITE IN THIS AREA

Page 1 07315

AGE IN YEARS
0 0
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9

GENDER
0 Male
1 Female

GRADE	
0 6th	4 10th
1 7th	5 11th
2 8th	6 12th
3 9th	

ETHNIC ORIGIN How do you describe yourself? (Mark all that apply)
0 White or Caucasian
1 Black or African American
2 Hispanic or Latino
3 Native Hawaiian or Other Pacific Islander
4 American Indian or Alaskan Native
5 Other

1. **Which family members live with you? Mark all that apply.**

◯Father
◯Mother
◯Stepfather
◯Stepmother
◯Older sibling (please specify the number _____)
◯Younger sibling (please specify the number _____)
◯Grandfather
◯Grandmother
◯Others (please specify the number _____)

2. **Which of these comes closest to describing your parents' educational backgrounds?** (Mark one for each parent)

Mother	*Father*	
0	0	Junior high school
1	1	Senior high school
2	2	Junior college / college work / college degree
3	3	Some graduate work / master's degree
4	4	Professional degree / doctoral degree (e.g., M.D., Ph.D.)

3. **What are your parents' work status'? (Mark one for each parent)**

Mother	*Father*	
0	0	Working full-time
1	1	Working part-time
2	2	Not working

PLEASE DO NOT WRITE IN THIS AREA

PLEASE DO NOT WRITE IN THIS AREA

How well do the following statements describe you? Rate each statement on the following scale by filling in bubble which best fits.

	Describes me very well	Describes me well	Describes me fairly well	Does not quite describe me	Does not describe me well	Does not describe me at all
1. I "lose my head" easily	0	1	2	3	4	5
2. At times I have crying and/or laughing fits that I seem unable to control	0	1	2	3	4	5
3. I can take criticism without resentment	0	1	2	3	4	5
4. Even under pressure I manage to remain calm	0	1	2	3	4	5
5. I keep an even temper most of the time	0	1	2	3	4	5
6. I fear something constantly	0	1	2	3	4	5
7. Usually I control myself	0	1	2	3	4	5
8. In the past year I have been very worried about my health	0	1	2	3	4	5
9. I am proud of my body	0	1	2	3	4	5
10. I seem to be forced to imitate people I like	0	1	2	3	4	5
11. Very often I think that I am not at all the person I would like to be	0	1	2	3	4	5
12. I frequently feel ugly and unattractive	0	1	2	3	4	5
13. When others look at me they must think that I am poorly developed	0	1	2	3	4	5
14. I feel strong and healthy	0	1	2	3	4	5
15. If I put my mind to it, I can learn almost anything	0	1	2	3	4	5
16. When I decide to do something, I do it.	0	1	2	3	4	5
17. I find life an endless series of problems without a solution in sight	0	1	2	3	4	5
18. I feel that I am able to make decisions	0	1	2	3	4	5
19. I feel that I have no talent whatsoever	0	1	2	3	4	5

20. How often do you compare how well things are going for you in general (socially, personally, etc.) with other people?

0 Never 1 Rarely 2 Usually 3 Often 4 Always

21. When you receive exam scores back, how likely is it that you would compare your current score with how well you did on *previous* exams?

0 Least likely
1 Less likely
2 Don't know
3 More likely
4 Most likely

22. When you receive exam scores back, how likely is it that you would compare your current score with how well others did on the same exam?

0 Least likely
1 Less likely
2 Don't know
3 More likely
4 Most likely

Please indicate how much each of the following words describes you
(For example, if you think you are a little more popular than most people your age, then you'd answer with a '5' on the scale").

	Not at all like me				Exactly like me
23. Popular	0	1	2	3	4
24. Smart	0	1	2	3	4
25. Considerate	0	1	2	3	4
26. Confused	0	1	2	3	4
27. Immature	0	1	2	3	4
28. "Cool" (sophisticated)	0	1	2	3	4

	Not at all like me				Exactly like me
29. Self-confident	0	1	2	3	4
30. Unattractive	0	1	2	3	4
31. Dull (boring)	0	1	2	3	4
32. Independent	0	1	2	3	4
33. Careless	0	1	2	3	4
34. Self-centered	0	1	2	3	4

Please indicate how well the following describes you by bubbling in "true" or "false."

35. More often than not I feel put down by the kids at school. 0 True 1 False

36. My parents do not like me very much. 0 True 1 False

PLEASE DO NOT WRITE IN THIS AREA

07315

How do you think your close friends feel (or would feel) about you doing each of the following thing:

	Strongly Approve	Approve	Don't Know	Disapprove	Strongly Disapprove
37. Smoke one or more packs of cigarettes per day	0	1	2	3	4
38. Take four or more drinks of alcohol (beer, wine, liquor) daily.	0	1	2	3	4
39. Take one or two drinks of alcohol (beer, wine, liquor) occasionally	0	1	2	3	4
40. Use marijuana occasionally	0	1	2	3	4
41. Use marijuana daily	0	1	2	3	4
42. Use illicit drugs	0	1	2	3	4

How do you think your parents feel (or would feel) about you doing each of the following things:

	Strongly Approve	Approve	Don't Know	Disapprove	Strongly Disapprove
43. Smoke one or more packs of cigarettes per day	0	1	2	3	4
44. Use illicit drugs	0	1	2	3	4
45. Take one or two drinks of alcohol (beer, wine, liquor) occasionally	0	1	2	3	4

Please provide your own estimation of the following:

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
About people your age											
46. What percentage of *people your age* do you think are sexually active?	0	1	2	3	4	5	6	7	8	9	○
47. What percentage of *people your age* do you think smoke cigarettes?	0	1	2	3	4	5	6	7	8	9	○
48. What percentage of *people your age* do you think use illicit drugs?	0	1	2	3	4	5	6	7	8	9	○
49. What percentage of *people your age* do you think drink alcohol regularly?	0	1	2	3	4	5	6	7	8	9	○
About your friends											
50. What percentage of *your friends* are sexually active?	0	1	2	3	4	5	6	7	8	9	○
51. What percentage of *your friends* smoke cigarettes?	0	1	2	3	4	5	6	7	8	9	○
52. What percentage of *your friends* use illicit drugs?	0	1	2	3	4	5	6	7	8	9	○
53. What percentage of *your friends* drink alcohol regularly?	0	1	2	3	4	5	6	7	8	9	○

***IF YOU* did the following activities, to what extent do you believe that you would be personally at risk of getting hurt or sick?**

	No Risk At All						Very Much At Risk
	0	1	2	3	4	5	6
54. Drinking beer	0	1	2	3	4	5	6
55. Drinking wine	0	1	2	3	4	5	6
56. Drinking whiskey	0	1	2	3	4	5	6
57. Drinking alcohol (beer, wine, whiskey, liquor) occasionally	0	1	2	3	4	5	6
58. Drinking any alcohol (beer, whine, whiskey, liquor) at all	0	1	2	3	4	5	6
59. Drinking five (males) / four (females) or more drinks in a row	0	1	2	3	4	5	6
60. Smoking cigarettes	0	1	2	3	4	5	6
61. Using marijuana occasionally	0	1	2	3	4	5	6
62. Using any marijuana at all	0	1	2	3	4	5	6
63. Taking methamphetamines	0	1	2	3	4	5	6
64. Using inhalants (glue, fumes, amyls, thinner)	0	1	2	3	4	5	6
65. Having unprotected sex	0	1	2	3	4	5	6

PLEASE DO NOT WRITE IN THIS AREA

07315

IF some other person your age **engaged in the following activities, to what extent do you believe that he/she would be at risk of getting hurt or sick?**

	No Risk At All						Very Much At Risk
	0	1	2	3	4	5	6
66. Drinking beer	0	1	2	3	4	5	6
67. Drinking wine	0	1	2	3	4	5	6
68. Drinking whiskey	0	1	2	3	4	5	6
69. Drinking five (males) / four (females) or more drinks in a row	0	1	2	3	4	5	6
70. Smoking cigarettes	0	1	2	3	4	5	6
71. Taking methamphetamines	0	1	2	3	4	5	6
72. Using inhalants (glue, fumes, amyls, thinner)	0	1	2	3	4	5	6
73. Having unprotected sex	0	1	2	3	4	5	6

To what extent are the benefits or pleasures provided by each of the following activities greater than the risks associated with it?

	Risks much greater than the benefits	Risks greater than the benefits	Risks slightly greater than the benefits	Undecided	Benefits slightly greater than the risks	Benefits greater than the risks	Benefits much greater than the risks
	0	1	2	3	4	5	6
74. Drinking beer	0	1	2	3	4	5	6
75. Drinking wine	0	1	2	3	4	5	6
76. Drinking whiskey	0	1	2	3	4	5	6
77. Drinking 5 (males) / 4 (females) drinks or more in a row	0	1	2	3	4	5	6
78. Smoking cigarettes	0	1	2	3	4	5	6
79. Taking methamphetamines	0	1	2	3	4	5	6
80. Using inhalants (glue, fumes, amyls, thinner)	0	1	2	3	4	5	6
81. Having unprotected sex	0	1	2	3	4	5	6

Please answer the following questions by bubbling in the appropriate response.

82. Have you ever smoked cigarettes?

0 Never smoked
1 Once or twice
2 Occasionally, but not regularly
3 Regularly in the past
4 Regularly now

83. If you have ever smoked cigarettes, at what age did you first use them?

0 Never smoked
1 7 years old or less
2 8 - 9 years old
3 10 -12 years old
4 13 - 15 years old
5 16 - 17 years old
6 18 or more years old

84. How often in the *last year* have you smoked cigarettes?

0 None
1 1 - 5 times
2 6 - 19 times
3 20 - 40 times
4 More than 40 times

85. Do either or both of your parents smoke?

0 Only father smokes
1 Only mother smokes
2 Both father and mother smoke
3 Neither father nor mother smoke

86. Do any one of your brothers or sisters smoke?

0 Yes (write in the numer of siblings who smoke _____)
1 No

87. How many of your friends smoke?

0 None 1 One 2 Two 3 Three 4 More than 3

If more than 3 friends smoke, indicate how many by writing the number in the box. ☐

88. If you have ever used marijuana, at what age did you first use it?

0 Never used marijuana
1 7 years old or less
2 8-10 years old
3 10-12 years old
4 13-15 years old
5 16 - 17 years old
6 18 or more years old

89. If you have ever drank alcohol, at what age did you first drink?

0 Never drank alcohol
1 7 years old or less
2 8-10 years old
3 10-12 years old
4 13-15 years old
5 16 - 17 years old
6 18 or more years old

90. Compared to others your age, would you say your health is. . .

0 Excellent 1 Good 2 Fair 3 Poor

PLEASE DO NOT WRITE IN THIS AREA

Please answer the following questions by bubbling in the appropriate response.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
91. Smoking is OK as long as you don't smoke too many.	⓪	①	②	③	④
92. A person who eats right and exercises regularly can smoke without harming his/her health.	⓪	①	②	③	④
93. If you are young and healthy, cigarette smoking is not dangerous.	⓪	①	②	③	④
94. The anti-smoking ads twist the facts to make cigarette smoking look worse for your health that it really is.	⓪	①	②	③	④
95. If I smoke cigarettes, I will live for a long time.	⓪	①	②	③	④
96. If I smoke cigarettes, I will live a healthy life.	⓪	①	②	③	④
97. If I smoke cigarettes, I will get lung cancer.	⓪	①	②	③	④
98. If I smoke cigarettes, I will get heart disease.	⓪	①	②	③	④
99. If I smoke cigarettes, I will cough.	⓪	①	②	③	④
100. If I smoke cigarettes, I will feel good.	⓪	①	②	③	④
101. If I smoke cigarettes, I will be able to relax.	⓪	①	②	③	④
102. If I smoke cigarettes, I will be able to get away from my problems.	⓪	①	②	③	④
103. If I smoke cigarettes, I will be less nervous is social situations.	⓪	①	②	③	④
104. If I smoke cigarettes, I will be able to concentrate better at work and/or school.	⓪	①	②	③	④
105. If I smoke cigarettes, I will be hooked.	⓪	①	②	③	④
106. If I smoke cigarettes, I will feel left out of the group.	⓪	①	②	③	④
107. If I smoke cigarettes, I will lose my friends.	⓪	①	②	③	④
108. The goal of achieving a healthy lifestyle is an important influence on my behavior.	⓪	①	②	③	④

109. If I smoke cigarettes, that is because it is . . .

⓪ Not applicable; I don't smoke
① Very pleasant
② Pleasant
③ Neither pleasant nor unpleasant
④ Unpleasant
⑤ Very unpleasant

110. If I smoke cigarettes, that is because it is . . .

⓪ Not applicable; I don't smoke
① Very nice
② Nice
③ Neither nice nor awful
④ Awful
⑤ Very awful

111. If I smoke cigarettes, that is because it is . . .

⓪ Not applicable; I don't smoke
① A lot of fun
② Fun
③ A little fun
④ Not fun
⑤ Not fun at all

Please mark the choice that shows how much you agree or disagree with each statement about your friends.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
112. Most of my friends think that getting good grades is important.	⓪	①	②	③	④
113. Most of my friends think school is a pain.	⓪	①	②	③	④
114. My friends often try to get me to do things the teacher doesn't like.	⓪	①	②	③	④

Please think of your best friend in this school. As far as you know, rate how much you agree with the following statements about him/her.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
115. Is interested in school.	⓪	①	②	③	④
116. Attends class regularly.	⓪	①	②	③	④
117. Plans to go to college.	⓪	①	②	③	④
118. Belongs to a gang.	⓪	①	②	③	④
119. Gets in trouble with the police.	⓪	①	②	③	④

120. How many of your friends have been picked up by the police?

⓪ None ① One ② Some ③ Most ④ All

121. How many times in the last two weeks have you had five or more alcoholic drinks (beer, wine, liquor) in a sitting?

⓪ None
① Once
② Twice
③ 3 to 5 times
④ 6 to 9 times
⑤ 10 or more times

LIFETIME USE:

HAVE YOU *EVER* USED. . .?

	Never	1-5 Times	6-19 Times	20-40 Times	More than 40 Times
122. Snuff/Smokeless tobacco	⓪	①	②	③	④
123. Cigars (tobacco)	⓪	①	②	③	④
124. Pipe (tobacco)	⓪	①	②	③	④
125. Alcohol (beer, wine, wine coolers, liquor)	⓪	①	②	③	④
126. Marijuana (hashish or hash oil)	⓪	①	②	③	④
127. Cocaine	⓪	①	②	③	④
128. Crack	⓪	①	②	③	④
129. Inhalants (huffing glue, fumes, amyls)	⓪	①	②	③	④
130. Amphetamines (uppers)	⓪	①	②	③	④
131. Methamphetamines (meth, crank, crystal)	⓪	①	②	③	④
132. Ritalin (non-prescribed use only)	⓪	①	②	③	④
133. Methcanthinone (cat)	⓪	①	②	③	④
134. Tranquilizers or Sleeping Pills (downers) (non-prescribed)	⓪	①	②	③	④
135. Narcotics (opium, morphine, codeine) (non-prescribed)	⓪	①	②	③	④
136. Heroin	⓪	①	②	③	④
137. LSD (acid)	⓪	①	②	③	④
138. MDMA (ecstasy, XTC, X)	⓪	①	②	③	④
139. Other Psychedelics (psilocybin, mescaline, etc.)	⓪	①	②	③	④
140. Rohypnol (Roofies)	⓪	①	②	③	④
141. GHB	⓪	①	②	③	④
142. Steroids (non-prescribed use)	⓪	①	②	③	④
143. A needle or syringe to inject a drug	⓪	①	②	③	④

144. If you have ever used inhalants (huffing glue, fumes, amyls), at what age did you first use them?

- ⓪ Never used inhalants
- ① 7 years old or less
- ② 8 - 9 years old
- ③ 10 -12 years old
- ④ 13 - 15 years old
- ⑤ 16 - 17 years old
- ⑥ 18 or more years old

ANNUAL USE

HOW MANY TIMES IN THE *LAST YEAR* HAVE YOU USED. . .?

	Never	1-5 Times	6-19 Times	20-40 Times	More than 40 Times
145. Snuff/Smokeless tobacco	⓪	①	②	③	④
146. Cigars (tobacco)	⓪	①	②	③	④
147. Pipe (tobacco)	⓪	①	②	③	④
148. Alcohol (beer, wine, wine coolers, liquor)	⓪	①	②	③	④
149. Marijuana (hashish or hash oil)	⓪	①	②	③	④
150. Cocaine	⓪	①	②	③	④
151. Crack	⓪	①	②	③	④
152. Inhalants (huffing glue, fumes, amyls)	⓪	①	②	③	④
153. Amphetamines (uppers)	⓪	①	②	③	④
154. Methamphetamines (meth, crank, crystal)	⓪	①	②	③	④
155. Ritalin (non-prescribed use only)	⓪	①	②	③	④
156. Methcanthinone (cat)	⓪	①	②	③	④
157. Tranquilizers or Sleeping Pills (downers) (non-prescribed)	⓪	①	②	③	④
158. Narcotics (opium, morphine, codeine) (non-prescribed)	⓪	①	②	③	④
159. Heroin	⓪	①	②	③	④
160. LSD (acid)	⓪	①	②	③	④
161. MDMA (ecstasy, XTC, X)	⓪	①	②	③	④
162. Other Psychedelics (psilocybin, mescaline, etc.)	⓪	①	②	③	④
163. Rohypnol (Roofies)	⓪	①	②	③	④
164. GHB	⓪	①	②	③	④
165. Steroids (non-prescribed use)	⓪	①	②	③	④
166. A needle or syringe to inject a drug	⓪	①	②	③	④

PLEASE DO NOT WRITE IN THIS AREA

USE IN PAST MONTH

HOW MANY TIMES IN THE PAST MONTH (30 DAYS) HAVE YOU USED. . .?

	Never	1-5 Times	6-19 Times	20-40 Times	More than 40 Times
167. **Cigarettes**	0	1	2	3	4
168. **Snuff/Smokeless tobacco**	0	1	2	3	4
169. **Cigars** (tobacco)	0	1	2	3	4
170. **Pipe** (tobacco)	0	1	2	3	4
171. **Alcohol** (beer, wine, wine coolers, liquor)	0	1	2	3	4
172. **Marijuana** (hashish or hash oil)	0	1	2	3	4
173. **Cocaine**	0	1	2	3	4
174. **Crack**	0	1	2	3	4
175. **Inhalants** (huffing glue, fumes, amyls)	0	1	2	3	4
176. **Amphetamines** (uppers)	0	1	2	3	4
177. **Methamphetamines** (meth, crank, crystal)	0	1	2	3	4
178. **Ritalin** (non-prescribed use only)	0	1	2	3	4
179. **Methcanthinone** (cat)	0	1	2	3	4
180. **Tranquilizers or Sleeping Pills** (downers) (non-prescribed)	0	1	2	3	4
181. **Narcotics** (opium, morphine, codeine) (non-prescribed)	0	1	2	3	4
182. **Heroin**	0	1	2	3	4
183. **LSD** (acid)	0	1	2	3	4
184. **MDMA** (ecstasy, XTC, X)	0	1	2	3	4
185. **Other Psychedelics** (psilocybin, mescaline, etc.)	0	1	2	3	4
186. **Rohypnol** (Roofies)	0	1	2	3	4
187. **GHB**	0	1	2	3	4
188. **Steroids** (non-prescribed use)	0	1	2	3	4
189. **A needle or syringe to inject a drug**	0	1	2	3	4

190. **HOW MUCH ARE YOU SATISFIED WITH YOUR LIFE?**

HOW TRUTHFULLY DID YOU ANSWER THESE QUESTIONS?

0 Not truthfully at all 1 Somewhat truthfully 2 Quite Truthfully

YOU HAVE COMPLETED THE SURVEY!
THANK YOU!

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07315

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Lead Graduate, Program Evaluation, NSF Grant Research Project, A.I.M.S, Texas A&M University, 2010.

Research Presentations: Lamkin, ML., Thomsen, C., Diep, CS., Tisone, CA. (2009). *Availability of whole wheat and corn tortillas in border communities vs. interior communities in Texas: An examination of the shopping environment.* Poster presented at Student Research week, Texas A&M University (March 22-26, 2010).

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